

by Paula Golightly

# Lower Cañon Creek Restoration



**Steelhead trout**

*Illustration by Duane Raver/USFWS*

**Since 1995, the Jobs-in-the-Woods Watershed Restoration Program in northern California and Klamath County, Oregon, has received approximately \$3.5 million, funded 50 projects in 42 watersheds within 9 counties, and employed 550 people. Other accomplishments include:**

- **269 miles (432 km) of roads decommissioned or upgraded;**
- **46 miles (74 km) of riparian and streambank fenced to exclude livestock;**
- **23 miles (37 km) of stream opened to fish by removing manmade barriers;**
- **55 miles (88 km) of instream habitat improvements;**
- **1,575 acres (637 hectares) of upland, riparian, and wetland habitat restoration and enhancement; and**
- **\$ 3.2 million in additional funding has been leveraged, including cost share and in-kind contributions.**

Since 1995, the Fish and Wildlife Service's Jobs-in-the-Woods Watershed Restoration Program (JITW) has provided funds for watershed restoration and enhancement projects on private, State, and tribal lands within the range of the northern spotted owl (*Strix occidentalis caurina*) in northern California and the upper Klamath River Basin in Oregon. Part of the Northwest Forest Plan, the JITW program is intended not only to promote ecological recovery but also to aid local economies by providing training and jobs.

One JITW effort, the Lower Cañon Creek Habitat Restoration Project, began in 1996. It involved the cooperation of a private landowner and the participation of the Redwood Community Action Agency, a non-profit organization. Cañon Creek is a tributary of the Mad River in Humboldt County, California, and is approximately 7 miles (11 kilometers) long with a drainage basin area of 16 square miles (41 square km). Land in the watershed is managed primarily for timber production. Among the fish native to Cañon Creek are coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), and steelhead trout (*Oncorhynchus mykiss*), all of which are protected or are candidates for protection under the Endangered Species Act.

The California Department of Fish and Game (CDFG) has used Cañon Creek since 1984 as an index stream to assess the health of anadromous fish populations in northern California. Stream surveys and watershed assessments conducted over the years by various agencies have noted a number

of problems: unstable stream banks contributing sediment to the creek, a lack of instream structure and habitat complexity, a lack of large conifers in the riparian zone to provide large woody debris (an important component of fish habitat), and severely aggraded conditions (the deposit of sediment) in the lower portion of the creek, resulting in a braided channel and subsurface flow in the late summer and early fall. Subsurface flow prevents the passage of fish to and from the Mad River, causing the fish to become stranded and vulnerable to predation.

An additional impact on the creek resulted from the removal of Sweasy Dam in 1971, located on the Mad River approximately 1.5 miles (2.4 km) upstream from Cañon Creek. The dam once provided water for the local municipal water district. Its subsequent removal released stored sediment and altered the floodplain structure, forming an expansive depositional terrace near the mouth of Cañon Creek, further restricting fish movement from the creek into the Mad River.

The objective of the Lower Cañon Creek Restoration Project was to improve access to Cañon Creek for early fall spawning fish. This would be accomplished by increasing the confinement of the channel along 1,000 feet (305 m) of sediment filled stream so that high flows could scour and deepen the active channel. We hoped that a single deeper channel would enhance the chances for a continuous year-round flow though lower Cañon Creek. An additional objective was to employ displaced workers as part of a job retraining program, providing them with field experience in stream restoration.

The project design focused on creating channel confinement using several thousand willow cuttings to construct baffles (bundles of branches and cuttings placed into trenches in the stream channel) and to plant along the creek. The baffles and streamside plantings then take root and build up the stream banks by trapping silt. In addition, a limited amount of riprap

mixed with willow was placed along the most upstream portion of the project reach to prevent high flows from cutting into and washing out willow baffles. A rock and log structure was placed within the riprap and willow structures to improve instream habitat for fish.

The workers used heavy equipment to place the riprap and willow in the bank and dig trenches for placement of willow materials along the stream. The JITW Training Crew collected willow materials by hand and placed them in designated areas along the stream. Stream cross sections were measured at six sites immediately following the construction work. This information was used as benchmarks against which to monitor channel changes over time.

After two winters, Cañon Creek has downcut approximately 3 feet (1 m) and has a deeper, more defined channel. Between 1997 and 1998, a small landslide released two redwood trees from the bank into the channel. The water flow has scoured deep pools

underneath the trees, creating excellent cover habitat for fish. Using a procedure called Photopoint Monitoring, a series of photographs were taken at exact locations periodically to assess project effectiveness. Photopoint and cross section monitoring will continue.

This restoration project employed approximately 18 people. Partners in the project included the Redwood Community Action Agency, the Simpson Timber Company, McBain and Trush (a consultant to Simpson Timber Company), the CDFG, and the Service.

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***Cañon Creek, looking downstream after the first winter since project implementation. The channel has begun to deepen and willows are growing on the left bank.***

*USFWS photo by Paula Golightly*

